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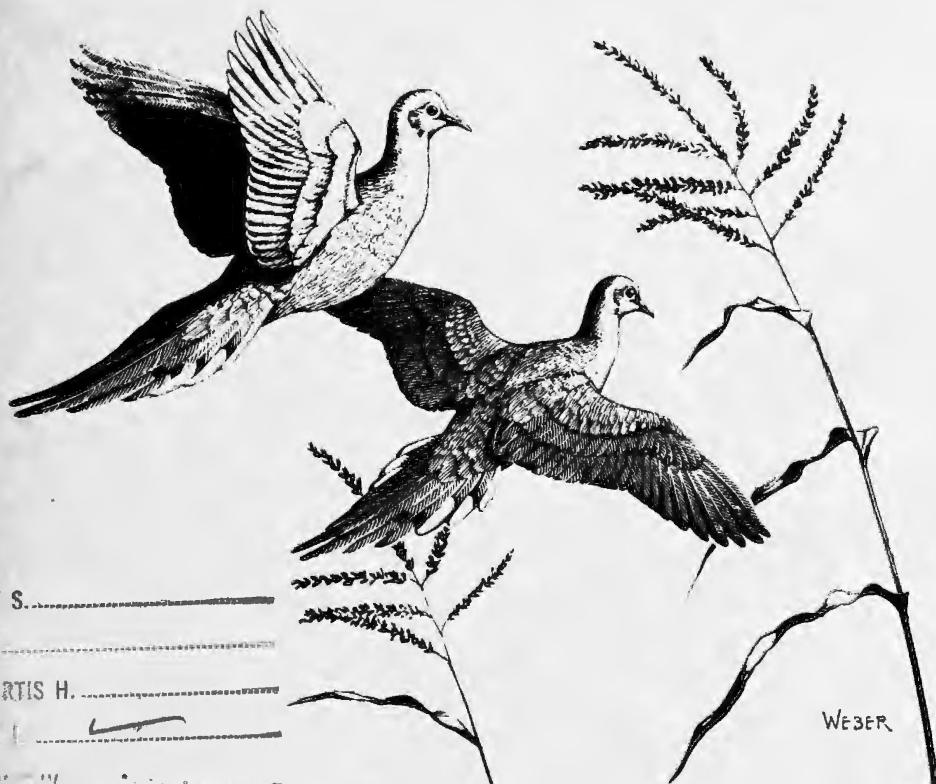
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MOURNING DOVE STATUS REPORT

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Special Scientific Report--Wildlife No. 49

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**United States Department of the Interior, Fred A. Seaton, Secretary
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MOURNING DOVE STATUS REPORT - 1960

Compiled by

**William H. Kiel, Jr.
Branch of Wildlife Research
Bureau of Sport Fisheries and Wildlife**

**U. S. Fish and Wildlife Service
Special Scientific Report - Wildlife No. 49**

Washington June 1960



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ABSTRACT

An index to the 1960 mourning dove breeding population was obtained by a call-count survey conducted throughout the United States. Trends in the breeding-population index are calculated for three management units and for hunting and nonhunting States within management units. Trends in the breeding-population indexes from 1959 to 1960 are as follows: Eastern Unit up 5 percent, Central Unit up 14 percent, and Western Unit down 10 percent. Long-term trends in the breeding indexes show substantial increases in the Central and Eastern Units and little change in the Western Unit. For the United States as a whole, the 1960 breeding-population index is up 6 percent from 1959 and is 40 percent above the 1953 level.

INTRODUCTION

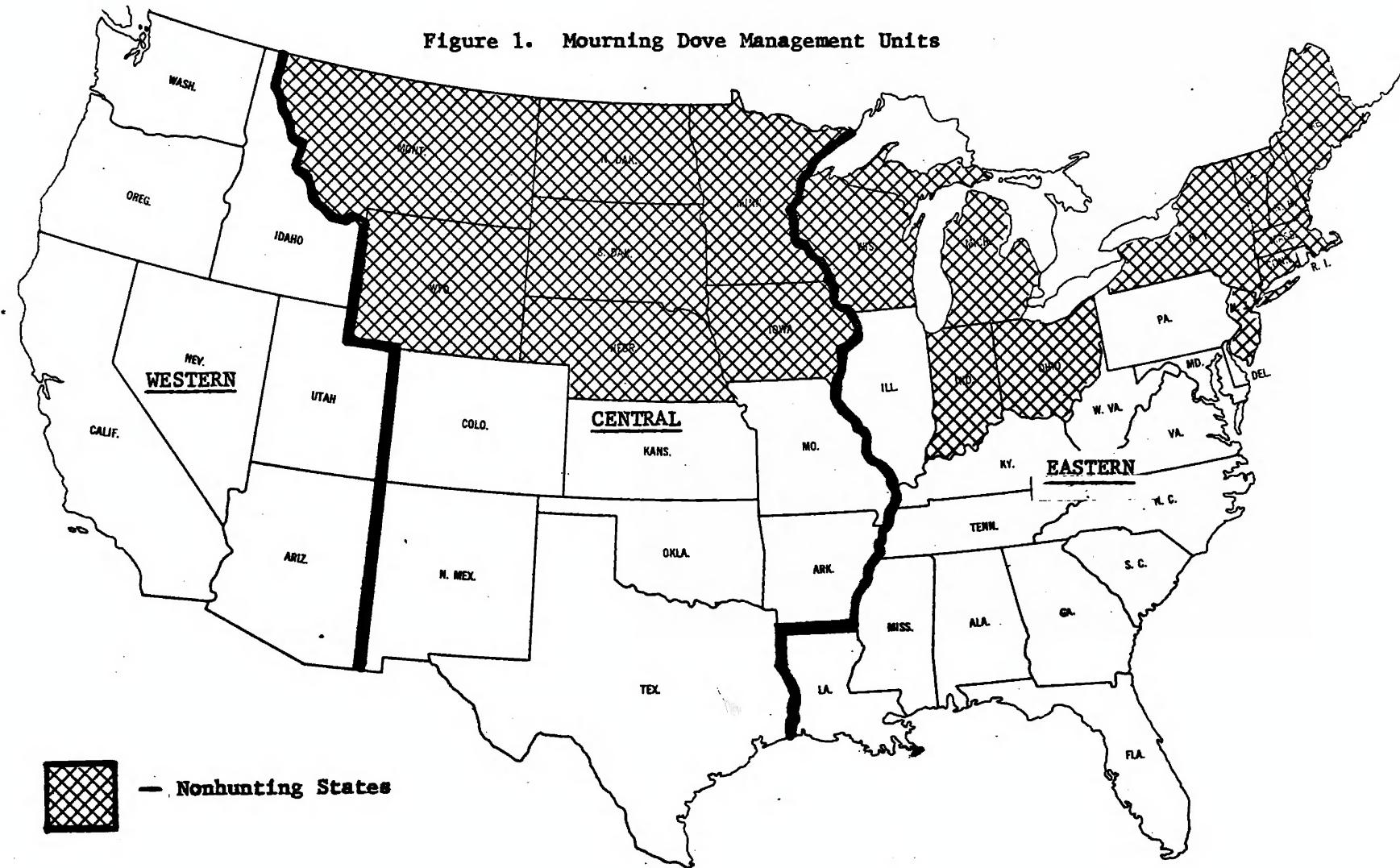
Prior to this year, the annual status of the mourning dove population has been reported in the Mourning Dove Newsletter. The Newsletter will continue as a report on activities in mourning dove research and management on a national scale, but the annual report on status of the population, used chiefly for regulatory purposes, will be published separately.

A survey of the breeding population of mourning doves by a system of call-count routes provides an annual index to the status of the population in the United States. Through the cooperation of State, Bureau, and independent observers, call-count routes were widely established by 1953. The hundreds of cooperators who participate in the call-count survey have contributed the data that form the basis for this report.

The call-count survey period is May 20 - June 10, a period during which dove calling activity is relatively stable based on intensive studies in eastern United States. Because of requirements concerning the publication of hunting regulations by a specified time prior to the hunting season, the Dove Regulations Committee meets late in June and population-status statistics must be summarized for consideration by the Committee. This status report serves that purpose. In addition, it is distributed to all cooperators in the call-count survey and is available to interested organizations and individuals.

For several years prior to 1960, the Federal framework of mourning dove hunting regulations has been established on the basis of eastern and western groups of States. Recent analysis of banding data indicates that there are three units of the mourning dove population in the United States that are largely independent of each other (Kiel, 1959). The criteria for independence are that a unit produces the doves that it harvests and does not produce doves that are harvested by other units. The Eastern, Central, and Western Management Units outlined in figure 1 best meet these criteria for management units on the basis of present information. Although additional banding data are needed to establish firmly the management-unit boundaries, the Federal framework of hunting regulations will be established on the basis of three management units this year.

Figure 1. Mourning Dove Management Units



PROCEDURE

The Call-count Method

Call-count routes were established after field investigations in 1950-51 reported by Foote, Peters, McGowan, Kerley, Duvall, Robbins, and Wagner (1952). Doves heard calling and doves seen are recorded on a route 20 miles in length with listening stations one mile apart. Call counts begin one-half hour before sunrise and continue for two hours. A report on the call-count method and procedures for randomly selecting call-count routes has been published by Foote, Peters, and Finkner (1958).

The call-count survey provides the only population index currently available. It has limitations and possible biases that require consideration and evaluation through further study. It is an index to the breeding population only and does not indicate production. This is an important limitation because a high percentage of the fall population is composed of young of the year. In calculating trends in the breeding-population index, doves heard calling has been a less variable index than doves seen. Additional research is needed to understand the relationship of doves heard calling to the actual population in various portions of the mourning dove breeding range.

Weighting Factors

To calculate trends in population indexes for units larger than one State, the base figure of average doves heard calling per route for each State is multiplied by the estimated area of dove habitat in the State. Dove habitat area was estimated in the 1958 Mourning Dove Newsletter and is listed in table 1.

In calculating band-recovery rates for local, immature, and adult mourning doves on a management-unit basis, the breeding-population index for a State was divided by the number of doves banded in each age group to obtain a weighting factor for each banded bird. Band-recovery rates on a State basis were calculated only for those States banding 100 or more doves in the age group of interest, and only those States were included in the calculation of weighted band-recovery rates for hunting and for nonhunting zones within a management unit (table 2). To obtain an average band-recovery rate for a management unit having a hunting and a nonhunting zone, recovery rates for the two zones were weighted by the ratio of the breeding indexes of the zones.

Long-term Trends

For the purpose of showing long-term trends in the breeding-population index of a State, a base year was selected, and annual percentage changes are applied to the base figure (average doves heard calling per route) to give an adjusted base which shows the true relation of indexes from year to year. The selection of a base figure is necessary because not all routes are censused each year. To measure year to year changes in indexes, only routes censused in both years are used. For example, in table 1 the adjusted base figure for Alabama in 1959 is 18.7 doves heard calling per route. To adjust this base figure to its proper 1960 level, the percentage change in doves heard calling on comparable routes in 1959 and 1960 is applied to the 1959 base figure. The percentage change in Alabama was an increase of 21.2 percent, which increases the base figure from 18.7 to 22.7.

TRENDS IN THE BREEDING-POPULATION INDEX - 1960

Eastern Management Unit (figure 1)

The breeding-population index for the Eastern Unit increased 5 percent from the 1959 level (table 1). Figure 2 shows that the breeding index of the Eastern Unit has been increasing rather steadily over a 7-year period and is now 38 percent above the 1953 level.

In hunting States of the Eastern Unit, the breeding index increased 5 percent above the 1959 index and is 45 percent above the 1953 level (table 1 and figure 3). In nonhunting States, the 1959 to 1960 trend was up 3 percent (table 1). The long term breeding-index trend in nonhunting States of the Eastern Unit is shown in figure 3 and indicates a relatively stable population in recent years. The 1960 index, however, is 21 percent above 1953.

Central Management Unit (figure 1)

The breeding-population index for the Central Unit increased 14 percent from the 1959 level (table 1). Figure 2 shows that for six years during a 7-year span the breeding index of the Central Unit has increased and is now 69 percent above the 1953 level.

Figure 2. Trends in Breeding-population Indexes by Management Units, 1953-1960

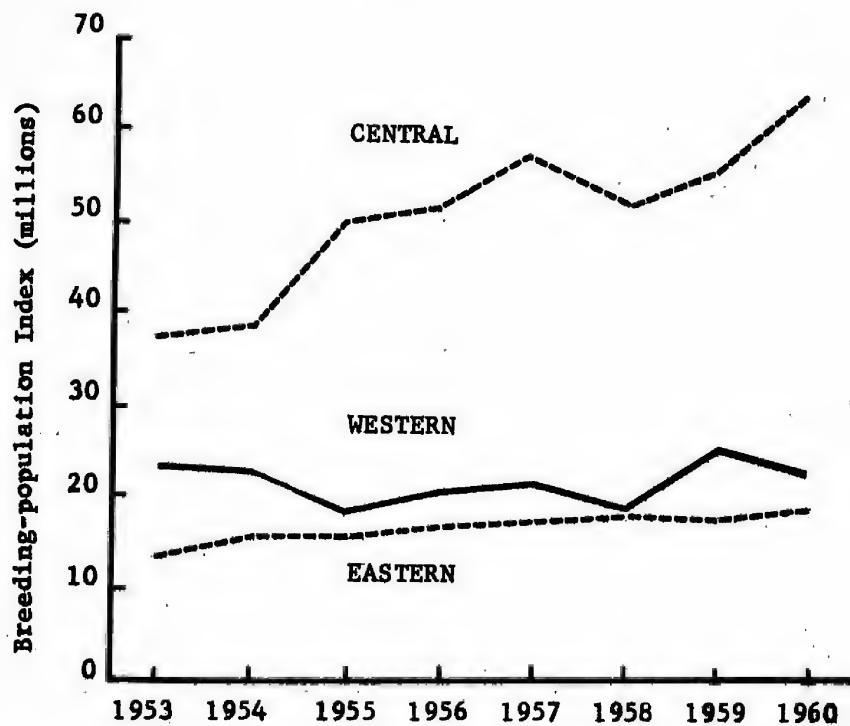
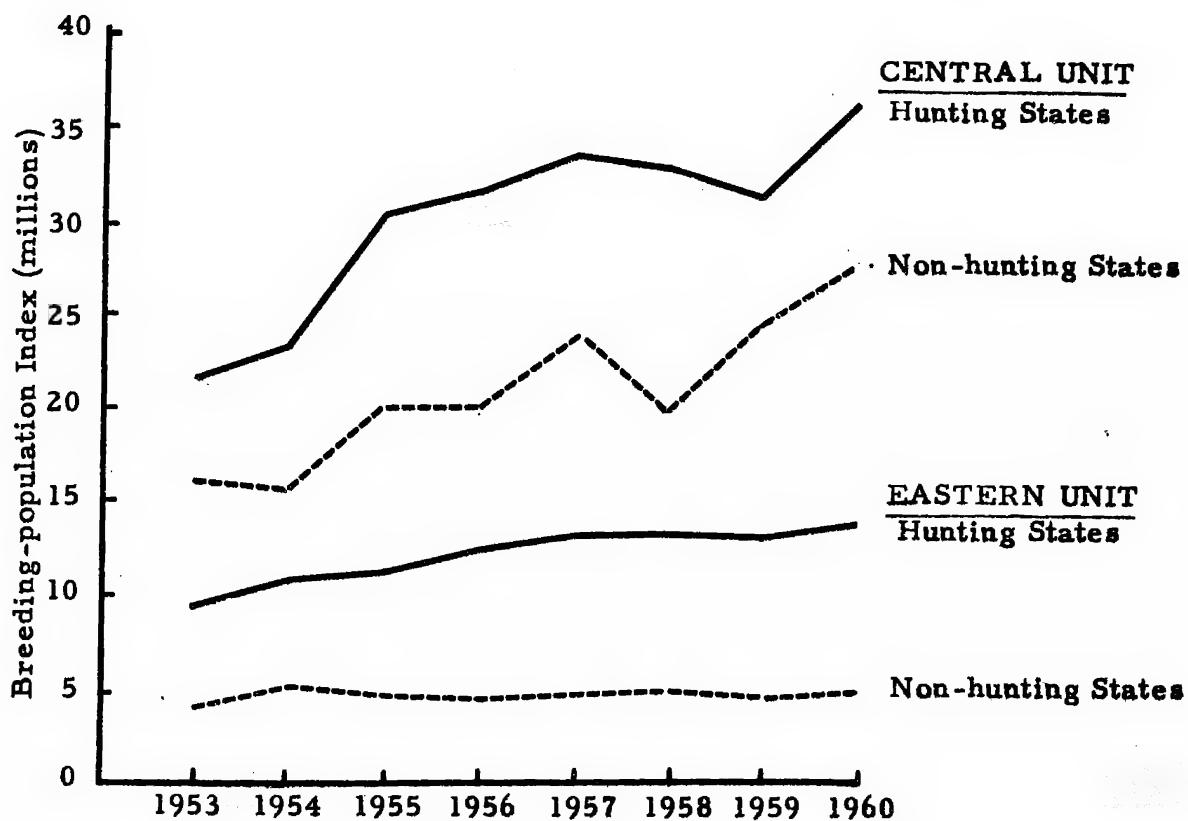


Figure 3. A Comparison of Trends in Breeding-population Indexes for Hunting and Non-hunting States within Management Units.



In hunting States of the Central Unit, the breeding index increased 14 percent above the 1959 index and is 67 percent above the 1953 level (table 1 and figure 3). In nonhunting States, the 1959 to 1960 trend was up 13 percent (table 1). The long term breeding-index trend in nonhunting States of the Central Unit is shown in figure 3 and generally follows the trend in hunting States. The 1960 index is 71 percent above the 1953 level.

Western Management Unit (figure 1)

The breeding-population index for the Western Unit decreased 10 percent from the 1959 level (table 1). Figure 2 shows that the breeding index of the Western Unit has fluctuated moderately over a 7-year period and is now 5 percent below the 1953 level.

Discussion of Population-index Trends

Indexes to mourning dove breeding populations in the three management units have shown small changes from the 1959 level. In recognition of the many variables in the call-count survey, changes of this magnitude are insignificant. Long-term trends in the breeding indexes, however, show substantial increases in the Central and Eastern Units and little change in the Western Unit.

Hunting and nonhunting States in the Central Unit have shown practically the same percentage increase in breeding indexes over a 7-year period, 67 percent and 71 percent respectively. Eastern Unit hunting States have shown a population-index increase more than twice as great as the nonhunting States, 45 percent and 21 percent respectively, over the same 7-year period. Table 2 shows that band-recovery rates are generally higher from doves banded during the breeding season in hunting States than from those banded in nonhunting States.

For the United States as a whole, the 1960 breeding-population index is 6 percent above the 1959 level. The long-term trend has increased each year since 1953 with one exception and is now 40 percent above the 1953 level (table 3).

LITERATURE CITED

Foote, L. W., H. S. Peters, T. H. McGowan, C. Kerley,
A. J. Duval, C. S. Robbins, and F. W. Wagner.

1952. Reports in Investigations of methods of appraising
the abundance of mourning doves. U. S. Fish and Wildlife
Service, Special Scientific Report: Wildlife No. 17, 53 pp.

_____, H. S. Peters, and A. L. Finkner.

1958. Design tests for mourning dove call-count sampling in
seven southeastern States. Jour. Wildl. Mgt., 22(4):402-408.

Kiel, W. H., Jr.

1959. Mourning dove management units— a progress report.

U. S. Fish and Wildlife Service Special Scientific Report:
Wildlife No. 42, 24pp.

Table 1. Trends in Doves Heard Calling on Call-count Routes, 1959 to 1960.

EASTERN MANAGEMENT UNIT - HUNTING STATES

State	Est. Dove Habitat (sq. mi.)	Compa- rable Routes	Average Heard per Route and Indexes*				Percent Change
			1959		1960		
			Heard	Index	Heard	Index	
Ala.	51,078	26	18.7	955	22.7	1,159	+21.2
Del.	1,978	1	54.0	107	49.0	97	-9.3
Fla.	54,262	22	11.0	597	12.9	700	+17.2
Ga.	58,518	22	18.9	1,106	24.0	1,404	+27.0
Ill.	55,947	29	33.2	1,857	31.6	1,768	-4.9
Ky.	40,109	18	27.4	1,099	28.3	1,135	+3.4
La.	45,177	27	13.8	623	14.8	669	+7.6
Md.	9,393	12	19.7	185	17.0	160	-13.6
Miss.	47,420	21	25.8	1,223	25.9	1,228	+0.2
N.C.	44,232	21	27.9	1,234	27.0	1,194	-3.2
Pa.	23,465	13	14.3	336	12.7	298	-11.1
R. I.	**	2	14.0	**	8.0	**	**
S.C.	30,594	19	30.2	924	32.0	979	+5.8
Tenn.	41,961	23	26.6	1,116	27.0	1,133	+1.6
Va.	37,904	10	43.2	1,637	43.2	1,637	0.0
W. Va.	16,863	1	4.2	71	10.9	184	+160.0
Subtotal	558,901	267		13,070		13,745	+5.2

EASTERN MANAGEMENT UNIT - NONHUNTING STATES

Conn.	3,919	1	6.0	24	9.6	376	+60.0
Ind.	36,205	7	35.4	1,282	26.8	970	-24.2
Maine	**	2	1.5	**	2.5	**	**
Mass.	1,977	3	5.3	10	7.6	15	+43.8
Mich.	28,511	14	30.1	858	27.2	775	-9.8
N. H.	**	3	3.0	**	4.7	**	**
N. J.	7,522	8	18.3	138	18.3	138	0.0
N. Y.	11,982	10	18.7	224	28.6	343	+53.1
Ohio	41,122	14	20.3	835	17.8	732	-12.5
Vt.	**	1	1.0	**	8.0	**	**
Wisc.	38,300	15	31.6	1,210	36.0	1,379	+13.9
Subtotal	169,538	78		4,581		4,728	+3.2
Eastern Unit							
Total	728,439	345		17,651		18,473	+4.7

Table 1. Trends in Doves Heard Calling on Call-count Routes, 1959 to 1960 (Cont'd)

CENTRAL MANAGEMENT UNIT - HUNTING STATES

State	Est. Dove Habitat (sq. mi.)	Compa- rable Routes	Average Heard per Route and Indexes*				Percent Change
			1959		1960		
			Heard	Index	Heard	Index	
Ark.	52,725	11	30.0	1,582	28.0	1,476	-6.6
Colo.	72,777	12	23.8	1,732	34.9	2,540	+46.6
Kans.	92,113	35	50.2	4,624	61.7	5,683	+22.9
Mo.	69,270	18	46.4	3,214	49.5	3,429	+6.6
N. Mex.	109,360	10	32.0	3,500	55.6	6,080	+73.9
Okla.	69,283	14	55.2	3,824	45.1	3,125	-18.3
Texas	263,644	44	48.7	12,839	51.1	13,472	+5.0
Subtotal	729,172	144		31,315		35,805	+14.3

CENTRAL MANAGEMENT UNIT - NONHUNTING STATES

Iowa	55,986	14	82.6	4,624	66.0	3,695	-20.1
Minn.	60,007	13	24.1	1,446	23.4	1,404	-2.8
Mont.	124,369	18	39.0	4,850	77.3	9,614	+98.3
Nebr.	76,653	7	73.4	5,626	81.8	6,270	+11.5
N. Dak.	70,054	20	33.1	2,319	35.0	2,452	+5.6
S. Dak.	73,475	8	47.0	3,453	29.4	2,160	-37.4
Wyo.	82,080	12	26.4	2,167	24.1	1,978	-8.9
Subtotal	542,624	92		24,485		27,573	+12.6

Central Unit

Total	1,271,796	236		55,800		63,378	+13.6
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Table 1. Trends in Doves Heard Calling on Call-count Routes, 1959 to 1960 (Cont'd)

WESTERN MANAGEMENT UNIT - HUNTING STATES

State	Est. Dove Habitat (Sq. mi.)	Compa- rable Routes	Average Heard per Route and Indexes*				Percent Change
			1959		1960		
			Heard	Index	Heard	Index	
Ariz.	113,580	20	33.6	3,816	26.3	2,987	-21.8
Calif.	141,123	28	55.1	7,776	59.5	8,397	+ 7.9
Idaho	49,685	17	26.7	1,327	30.8	1,530	+15.2
Nev.	108,704	19	33.2	3,609	24.1	2,620	-27.3
Oreg.	72,263	17	42.3	3,057	38.8	2,804	-8.3
Utah	74,111	17	43.5	3,224	35.2	2,609	-19.0
Wash.	46,884	15	51.3	2,405	35.3	1,655	-31.2
Western Unit							
Total	606,350	131		25,214		22,602	-10.4

*Average doves heard calling per route for each State is a base figure which has been adjusted annually by applying the percentage change occurring on comparable routes from year to year. The State index is expressed in thousands and is calculated by multiplying average doves heard calling per route times the estimated area of dove habitat in the State.

**The area of dove habitat has not been estimated for Maine, New Hampshire, Rhode Island, and Vermont.

Table 2. Comparative Weighted Band-recovery Rates on a Management-unit Basis.

		<u>Band-recovery Rate (percent)</u>		
		Adults	Immatures	Locals
Eastern Management Unit	Hunting States	3.9	5.7	4.2
	Nonhunting States	1.1	1.1	1.7
	Average*	3.1	4.4	3.5
Central Management Unit	Hunting States	1.4	2.6	2.3
	Nonhunting States	1.9	0.8	0.9
	Average*	1.6	1.9	1.7
Western Management Unit	Hunting States	2.8	3.6	2.0

*The averages are weighted on the basis of the breeding indexes of the hunting and nonhunting zones of the management units.

Table 3. Trends in the Breeding-population Index, 1953-60.

The first figure listed for each State by years is average doves heard calling per route for the State adjusted from a 1956 base. The base figure is adjusted by applying annual percentage changes determined from comparable routes. For States having random routes, 1957 is used as a base. The second figure for each State is an index expressed in thousands which is calculated by multiplying average doves heard calling per route times the estimated area of dove habitat in the State (habitat area given in Table 1).

State	1953	1954	1955	1956	1957	1958	1959	1960
Ala.	17.4 889	21.3 1,088	19.7 1,006	19.9 1,016	21.1 1,078	23.8 1,216	18.7 955	22.7 1,159
Ariz.	30.7 3,487	31.8 3,612	29.4 3,339	40.0 4,543	33.1 3,759	31.0 3,521	33.6 3,816	26.3 2,987
Ark.	34.6 1,824	27.1 1,429	32.0 1,687	29.4 1,550	32.6 1,719	33.7 1,777	30.0 1,582	28.0 1,476
Calif.	37.8 5,334	34.7 4,897	30.0 4,234	34.9 4,925	36.7 5,179	41.2 5,814	55.1 7,776	59.5 8,397
Colo.	no index	46.5 3,384	50.2 3,653	70.5 5,131	57.6 4,192	46.4 3,377	23.8 1,732	34.9 2,540
Conn.	5.0 20	0.0 0	5.6 22	5.5 22	9.0 35	7.0 27	6.0 24	9.6 376
Dela.	28.0 55	29.0 57	30.0 59	33.0 65	31.0 61	30.0 59	54.0 107	49.0 97
Fla.	18.2 988	15.2 825	16.7 906	14.6 792	13.8 749	11.0 597	11.0 597	12.9 700
Ga.	17.2 1,007	17.3 1,012	15.5 907	22.5 1,317	21.4 1,252	15.9 930	18.9 1,106	24.0 1,404
Idaho	22.8 1,133	30.0 1,491	26.3 1,307	26.8 1,332	27.0 1,341	23.8 1,183	26.7 1,327	30.8 1,530
Ill.	23.7 1,326	19.4 1,085	19.7 1,102	22.8 1,276	30.3 1,695	32.8 1,835	33.2 1,857	31.6 1,768
Ind.	23.5 851	42.4 1,535	35.7 1,293	29.3 1,061	32.8 1,188	34.0 1,231	35.4 1,282	26.8 970

State	1953	1954	1955	1956	1957	1958	1959	1960
Iowa	28.2 1,579	32.9 1,842	41.5 2,323	44.1 2,469	57.6 3,225	50.6 2,833	82.6 4,624	66.0 3,695
Kan.	29.3 2,699	27.7 2,552	40.6 3,740	43.4 3,998	42.9 3,952	42.9 3,952	50.2 4,624	61.7 5,683
Ky.	14.4 578	17.9 718	18.9 758	23.0 923	22.3 894	27.8 1,115	27.4 1,099	28.3 1,135
La.	23.0 1,039	24.7 1,116	27.4 1,238	25.2 1,138	17.0 768	15.9 718	13.8 623	14.8 669
Maine**							1.5	2.5
Md.	10.1 95	22.2 209	15.9 149	18.6 175	17.8 167	17.0 160	19.7 185	17.0 160
Mass.	3.7 7	6.0 12	2.0 4	1.0 2	8.3 16	3.7 7	5.3 10	7.6 15
Mich.	13.0 371	16.6 473	21.9 624	20.6 587	22.1 630	24.8 707	30.1 858	27.2 775
Minn.	30.9 1,854	36.3 2,178	39.6 2,376	37.6 2,256	33.1 1,986	28.9 1,734	24.1 1,446	23.4 1,404
Miss.	15.7 744	18.3 868	20.5 972	21.2 1,005	26.0 1,233	31.7 1,503	25.8 1,223	25.9 1,228
Mo.	26.8 1,856	29.3 2,030	42.5 2,944	50.6 3,505	61.0 4,225	52.7 3,651	46.4 3,214	49.5 3,429
Mont.	24.8 3,084	18.8 2,338	37.9 4,714	41.8 5,199	36.8 4,577	38.2 4,751	39.0 4,850	77.3 9,614
Neb.	82.6 6,332	62.5 4,791	55.3 4,239	43.8 3,357	53.6 4,109	35.1 2,691	73.4 5,626	81.8 6,270
Nev.	26.2 2,848	27.5 2,989	28.4 3,087	27.2 2,957	28.0 3,044	18.1 1,968	33.2 3,609	24.1 2,620
N. H.**							3.0	4.7
N. J.	9.7 73	16.6 125	11.4 86	11.8 89	14.0 105	15.7 118	18.3 138	18.3 138
N. Mex.	28.7 3,139	25.8 2,821	42.8 4,681	31.7 3,467	23.0 2,515	24.5 2,679	32.0 3,500	55.6 6,080

<u>State</u>	1953	1954	1955	1956	1957	1958	1959	1960
N. Y.	22.9 274	19.3 231	20.0 240	31.8 381	30.2 362	25.0 300	18.7 224	28.6 343
N. Car.	15.3 677	21.2 938	23.8 1,053	23.9 1,057	24.4 1,079	22.6 1,000	27.9 1,234	27.0 1,194
N. Dak.	9.8 687	17.1 1,198	18.0 1,261	21.6 1,513	24.7 1,730	30.3 2,123	33.1 2,319	35.0 2,452
Ohio	22.0 905	27.2 1,119	22.2 913	18.2 748	20.2 831	24.3 999	20.3 835	17.8 732
Okla.	13.4 928	23.0 1,594	32.1 2,224	42.1 2,917	51.0 3,533	55.8 3,866	55.2 3,824	45.1 3,125
Ore.	38.6 2,789	24.5 1,770	30.8 2,226	29.8 2,153	33.8 2,442	28.8 2,081	42.3 3,057	38.8 2,804
Penna.	9.5 223	13.7 321	11.8 277	13.2 310	15.0 352	13.1 307	14.3 336	12.7 298
R. I. **							14.0	8.0
S. Car.	18.9 578	31.2 955	29.6 906	29.6 906	30.0 918	31.6 967	30.2 924	32.0 979
S. Dak.	29.2 2,145	38.1 2,799	60.4 4,438	50.1 3,681	74.3 5,459	51.8 3,806	47.0 3,453	29.4 2,160
Tenn.	15.2 638	19.4 814	24.7 1,036	25.1 1,053	34.9 1,464	31.7 1,330	26.6 1,116	27.0 1,133
Texas	29.7 7,830	35.7 9,412	43.1 11,363	41.2 10,862	50.9 13,419	50.3 13,261	48.7 12,839	51.1 13,472
Utah	no index	88.3 6,544	42.4 3,142	38.0 2,816	43.5 3,224	28.6 2,120	43.5 3,224	35.2 2,609
Vt. **							1.0	8.0
Va.	13.2 500	16.0 606	18.2 690	22.2 841	32.2 1,221	40.6 1,539	43.2 1,637	43.2 1,637

State	1953	1954	1955	1956	1957	1958	1959	1960
Wash.	28.9 1,355	29.0 1,360	32.9 1,542	32.6 1,528	48.4 2,269	42.4 1,988	51.3 2,405	35.3 1,655
W. Va.	8.6 145	8.6 145	7.0 118	16.0 270	7.7 130	3.4 57	4.2 71	10.9 184
Wisc.	36.8 1,409	39.7 1,521	42.4 1,624	44.2 1,693	37.9 1,452	34.3 1,314	31.6 1,210	36.0 1,379
Wyo.	no index	5.6 460	7.5 616	18.1 1,486	30.9 2,536	22.7 1,863	26.4 2,167	24.1 1,978
TOTAL INDEX	*	77,262	85,119	88,372	96,118	89,074	98,665	104,453
PERCENTAGE CHANGE		+3.6	+10.2	+3.8	+8.8	-7.3	+10.8	+5.9

* The 1953 index is incomplete because Colorado, Utah, and Wyoming did not conduct call-count surveys until 1954. The percentage change from 1953 to 1954 is based on comparable data only.

** Maine, New Hampshire, Rhode Island, and Vermont first established call-count routes in 1959. No estimate has been made of the square miles of dove habitat in these States.

Table 4. Summary of Call-count Routes by States.

Includes all routes run in 1960 but only comparable routes for 1959.

ALABAMA

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960			1959	1960	1959	1960
5R	Madison	32	54	14	36	69R	Perry-Hale	37	65	35	48
8R	Colbert-					75R	Lee-Macon	23	28	4	5
	Franklin	3	18	12	10	76R	Lee	13	23	3	2
20R	Morgan- Marshall	33	45	22	24	77R	Choctaw	17	14	10	3
22R	Cherokee- Etowah	33	20	37	41	81R	Dallas	16	17	17	5
23R	Cherokee- DeKalb	31	42	33	35	89R	Wilcox	14	14	2	10
29R	Etowah	23	39	3	2	90R	Wilcox- Butler	11	23	1	2
34R	Walker	20	28	10	21	96R	Choctaw- Washington	6	4	8	3
35R	Jefferson	--	23	--	18	99R	Monroe	7	6	6	1
41R	Pickens	--	14	--	16	103R	Pike-Coffee- Barbour	15	31	19	20
43R	Jefferson	20	14	12	6	105R	Barbour- Henry	39	37	17	20
47R	Claburne- Randolph	11	24	16	22	107R	Clarke	34	23	10	15
52R	Shelby-Bibb	4	7	0	0	116R	Washington- Mobile	26	3	18	0
59R	Hale-Perry	13	14	4	3	121R	Covington	12	8	18	6
63R	Coosa- Elmore	12	11	16	11						

ARIZONA

1	Graham	32	22	7	152	11	Greenlee	31	36	263	127
2	Graham	27	1	83	27	12	Yavapai	44	27	12	1
3	Santa Cruz	28	33	29	17	13	Coconino	0	7	3	3
4	Pima	26	17	17	72	14	Yuma	57	25	44	64
5	Maricopa	41	19	603	486	15	Mohave	52	36	47	32
6	Maricopa	37	32	380	415	16	Maricopa	22	47	240	77
7	Maricopa	87	24	211	174	18	Navajo	16	46	12	26
8	Maricopa	26	22	16	27	19	Yuma	47	26	261	101
9	Maricopa	15	18	27	38	20	Coconino	2	13	0	4
10	Pima	23	31	65	77	21	Cochise	10	5	9	15

ARKANSAS

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960			1959	1960	1959	1960
1	Arkansas	32	72	72	152	8	Montgomery	1	2	4	11
2	Arkansas	64	71	42	48	9	Scott	0	6	0	4
3	Craighead	25	15	75	56	10	Marion	31	20	12	4
4	Craighead	48	32	48	56	11	Madison	41	23	13	3
5	Ouachita	15	14	37	42	12	Van Buren	34	15	17	3
6	Ouachita	10	11	31	38	New Poinsett		--	14	--	83

CALIFORNIA

1	Los Angeles	14	17	62	60	16	Sacramento	11	11	48	24
2	Los Angeles	45	63	49	54	17	Modoc	84	43	115	11
3	Sutter	25	31	57	14	18	Merced	13	15	61	30
4	Butte	136	84	123	130	19	Imperial	125	108	734	776
5	Humboldt	8	2	5	7	20	Santa Cruz	22	42	30	7
6	Modoc	20	21	48	13	23	Alameda	56	38	32	19
7	Tehama-Shasta	97	52	84	22	24	Santa Clara	44	29	32	17
8	Imperial	115	122	875	404	26	San Bernardino	0	0	0	0
9	Imperial	51	50	167	107	27	San Bernardino	10	7	23	19
10	Imperial	23	56	103	190	28	Imperial	14	9	28	19
11	Riverside	38	42	167	153	29	Riverside	14	10	16	16
12	Ventura	39	59	22	28	30	Sacramento	52	49	234	124
13	Los Angeles	2	5	34	10	31	El Dorado	39	57	37	17
14	Colusa	60	64	78	54	32	Kern	135	310	103	92
15	San Joaquin	57	59	153	121						

COLORADO

1	Crowley	38	28	53	63	13	Larimer-Weld	23	42	37	33
5	Bent	31	23	48	86	15	Larimer	57	321	25	19
6	Prowers	36	27	58	78	16	Phillips	--	22	--	14
7	Adams	18	36	32	41	17	Yuma-				
9	Arapahoe	13	22	66	20	18	Washington	10	17	7	2
10	Weld	22	18	29	26	19	Yuma	44	15	38	11
12	Douglas	--	29	--	20	20	Garfield	51	26	106	24
							Mesa	65	23	102	100

CONNECTICUT

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960			1959	1960	1959	1960
2	New London	5	8	2	0						
3	- -	--	5	--	7						

DELAWARE

1	Kent	54	49	14	7
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FLORIDA

1	Dade	11	14	37	43	13	Washington	13	9	9	4
2	Charlotte	22	17	0	14	14	Walton	3	6	2	2
3	Lee	9	7	0	0	15	Sante Rosa	9	11	3	2
4	Highlands	--	30	--	9	17	Leon	11	16	0	1
5	Polk	17	16	3	2	18	Levy-Marion	11	27	17	28
6	Marion	11	9	0	0	19	Levy Alachua	4	21	29	28
7	Levy	6	21	12	7	20	Polk	12	15	4	3
8	Lafayette	14	12	0	3	21	Orange	18	17	14	16
9	Volusia	10	11	0	0	22	Alachua	17	16	2	3
10	Columbia	3	5	0	0	23	Alachua	4	4	1	1
11	Gadsden-Leon	8	15	6	2	24	Alachua	19	17	5	11
12	Bay	12	0	0	0						

GEORGIA

10R	Gilmer-Pickens	15	37	7	43	34R	Oconee	28	37	17	32
16R	Gordon-Bartow	24	30	13	18	38R	Heard	13	21	22	14
18R	Dawson-Forsyth	13	18	3	14	47R	Troup- Chambers	10	17	12	13
25R	Cobb-Cherokee	10	8	16	9	60R	Upson	11	20	10	15
27R	Gwinnett- Barrow	40	28	10	25	67R	Screven- Jenkins	8	52	8	15
28R	Jackson-Barrow	25	39	29	33	79R	Chattahoochee- Steward	4	1	0	2
29R	Madison- Oglethorpe	38	17	29	17	85R	Laurens- Wheeler	25	19	5	6
31R	Haralson- Carroll	20	8	3	7	90R	Effingham	19	18	4	4
33R	Walton	32	39	29	98						

Continued--

GEORGIA - Continued --

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960			1959	1960	1959	1960
105R	Worth-Turner	12	42	10	16	121R	Pierce	14	16	9	35
111R	Wayne	19	11	12	6	140R	Lowndes	17	6	2	0
118R	Irwin-Berrien	14	38	26	22						

IDAHO

1	Bingham	23	29	36	35	14	Jefferson	36	77	48	28
2	Power	41	53	33	18	15	Bonneville	38	44	125	62
3	Bannock	27	40	12	29	16	Canyon	40	44	40	48
4	Caribou	24	24	42	29	17	Bear Lake	14	50	15	6
5	Power	10	8	78	45	18	Franklin	35	33	22	74
7	Nez Perce	34	24	24	15	22	Bonner-				
8	Ada-Canyon	36	10	52	12		Kootenai	--	30	--	1
9	Ada-Canyon	34	11	67	32	23	Benewah	17	20	3	4
10	Nez Perce	25	35	40	26	24	Gem-				
11	Nez Perce	43	28	65	56		Payette	83	115	192	133
12	Adams-										
	Washington	--	46	--	29						

ILLINOIS

1	Cook-Lake	8	34	14	11	17	Madison	8	9	37	19
2	Lake	28	41	14	17	18	Madison-				
3	Williamson	26	52	46	41		Jersey	41	25	45	26
4	Williamson-						DeKalb	5	2	8	8
	Jackson	44	42	45	20		Mason	45	42	32	19
5	Ogle	62	20	14	12		Mason	74	43	32	22
6	Ogle	35	22	7	7		St. Clair	63	75	37	13
7	Hancock	46	31	43	8		St. Clair	17	12	101	78
8	Marshall-						St. Clair-				
	Putnam	14	11	11	8		Monroe	15	21	29	25
9	Fulton-						Lee	11	9	15	13
	McDonough	58	48	24	5		Lee	19	16	17	5
10	Union	23	20	27	21		St. Clair	28	36	81	75
11	Macon	20	19	9	7		Winnebago	8	9	6	8
12	Ogle	--	26	--	2		Winnebago	--	41	--	21
13	Washington	65	99	113	37		St. Clair-				
14	Lawrence	53	58	58	51		Madison	19	20	33	44
15	Champaign	--	20	--	8		Tazewell	29	26	22	15
16	Whiteside	4	5	16	16		Knox	64	39	23	16

INDIANA

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
4	Daviess	96	40	166	32
7	Jasper-				
	Pulaski	15	15	28	11
9	Jackson	31	36	39	54
10	Newton	14	25	12	5
12	Wayne	32	39	17	35
13	Fulton	32	13	31	23
14	Grant	32	23	20	30

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
15	Daviess	--		53	--
16	Orange	--		51	--
17	Morgan	--		19	--
18	Boone	--		18	--
19	Whitley	--		38	--
20	Whitley	--		36	--
21	Newton	--		54	--
22	La Grange	--		15	--

IOWA

1	Clay	--	25	--	12
2	Clay (North)	--	48	--	23
5	Story	8	16	32	34
6	Boone	18	13	62	29
9	Polk-Dallas	38	33	69	32
10	Mills-Fremont	177	98	119	63
11	Lee	55	29	34	37
12	Bremer-Fayette	30	34	22	12
13	Chickasaw-Bremer	48	27	28	23

15	Linn	47	42	40	22
16	Clarke-Decatur	71	62	60	101
17	Kossuth	71	44	28	40
18	Franklin	12	18	24	24
19	Wapello	50	45	30	25
20	Benton	19	49	28	31
21	Woodbury	49	44	65	36

KANSAS

1	Reno	54	82	139	64
2	Sedgwick	54	101	140	86
3	Barton	41	50	118	22
4	Saline	57	136	53	97
5	Shawnee	34	38	42	18
6	Montgomery	54	37	40	31
7	Cloud	79	197	196	131
8	Marshall	55	53	92	52
10	Crawford	34	47	33	34
11	Barber	81	49	151	74
12	Linn	116	147	38	59
13	Franklin	70	84	42	46
14	Russell	47	45	77	60
15	Barton	39	45	79	55

16	Rush	40	38	60	55
17	Ness	53	37	45	49
18	Finney	7	28	20	37
19	Finney	9	63	30	74
20	Pratt	61	96	82	74
21	Cherokee	90	102	145	150
22	Bourbon	56	72	52	91
23	Atchison	194	216	213	147
24	Sherman	12	2	8	1
26	Greeley	35	23	9	9
27	Pottawatomie	89	72	69	96
28	Marion	94	73	196	90
29	Clay	26	31	98	164
30	Smith	68	43	61	72

Continued --

KANSAS - Continued --

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
32	Graham	70	73	141	65
34	Grant	6	2	8	13
35	Rawlins	63	54	42	63
36	Gove	45	52	96	91

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
37	Greenwood	31	53	73	19
38	Hamilton	62	104	48	45
39	Meade	18	44	62	71

KENTUCKY

1R	Kenton-					43R	Crittenden	97	30	50	27
	Pendleton	12	8	4	8	49R	Hart	19	26	13	18
2R	Trimble-Henry	12	4	0	4	60R	Bullard-				
17R	Breckenbridge-					64R	McCracken	29	32	20	42
	Meade	32	52	10	16		Muhlenburg-				
20R	Spender-Nelson	23	28	16	16		Logan	14	27	9	13
23R	Bath-					79R	Christian	41	120	34	129
	Montgomery	24	15	5	2	82R	Logan-Warren	25	33	21	22
25R	Lawrence-					92R	Graves-Weak-				
	Johnson	11	10	5	3		ley, (Tenn.)	40	49	37	40
27R	Henderson	117	93	185	92	95R	Whitley-Camp-				
34R	Washington	12	9	6	2		bell, Tenn.)	11	1	3	0
41R	Floyd	4	6	0	6	96R	Bell	2	0	0	0

LOUISIANA

1	Sabine-Vernon	17	1	18	7	17	Morehouse	29	25	4	10
2	Webster	20	30	20	18	18	Iberville-				
3	Acadia	1	1	3	5		Ascension	5	7	6	21
5	E.Baton Rouge-					19	Terrebonne	5	4	4	2
	Iberville	0	4	6	0	20	Rapides	9	18	21	27
7	E. Feliciana	6	10	1	1	21	Rapides	19	19	12	10
8	Tangipahoa	0	10	0	8	24	Grant	37	33	28	25
9	Concordia	35	41	29	20	25	Vernon	17	8	24	15
10	Caldwell-					26	Lafayette-				
	Ouchita	26	10	5	7		St. Martin	23	30	24	34
11	Rapides	3	3	2	1	27	Lafayette-				
12	Rapides	13	6	4	4		St. Martin	18	27	30	35
13	Vernon-					28	Bienville	23	34	20	26
	Natchitoches	8	19	1	4	29	Pointe Coupe	19	17	3	16
14	Natchitoches	18	16	2	3	30	Union	6	5	14	12
15	Lafayette	22	22	15	21	31	Franklin	--	35	--	17
16	Vermillion	7	14	5	5	32	Vernon	11	13	4	8

MAINE

Rt.	No.	Heard		Seen	
		County	1959	1960	1959
1	Kennebec,				
	Lincoln,				
	Sagadahoc	2	3	0	1
2	Kennebec				
	Sagadahoc	1	2	0	1

Rt.	No.	Heard		Seen			
		County	1959	1960	1959	1960	
5	York			--	4	--	0

MARYLAND

1	Howard	41	32	4	3	7	Kent	9	17	1	12
2	Prince Georges	18	10	4	18	8	Queen Anne	14	17	5	11
3	Washington	7	21	12	18	9	Carolina	17	19	7	16
4	Howard	24	23	15	41	10	Talbot	16	13	3	0
5	Prince Georges	60	27	15	16	11	Dorchester	13	10	0	3
6	Cecil	8	9	18	17	12	Wicomico	9	6	1	0

MASSACHUSETTS

1	Essex	5	3	2	1	3	Bristol	3	9	13	0
2	Plymouth- Bristol	8	11	1	0						

MICHIGAN

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
1	Washtenaw	50	29	22	15
2	Washtenaw	40	55	16	19
4	Tuscola	8	25	5	1
5	Tuscola	5	6	4	3
6	Monroe	35	34	42	15
9	Bay	29	39	3	5
11	Newaygo	24	17	12	0
12	Newaygo	14	17	3	2
13	Ingham	29	17	7	11

MINNESOTA

1	Jackson	16	16	21	15
2	Jackson	9	26	21	26
6	Olmsted	16	18	98	24
7	Scott	22	26	24	30
8	Polk-Red Lake	29	22	14	14
9	Beltrami	8	21	2	12
11	Ottertail	52	26	9	8

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
14	Kalamazoo	--	18	--	12
15	Kalamazoo	--	67	--	26
18	Isabella	21	20	13	14
19	Isabella	--	27	--	17
20	Isabella	43	15	28	10
22	Isabella	13	23	9	22
24	Allegan	32	21	30	11
25	Calhoun	56	42	19	15

MISSISSIPPI

7R	Tishomingo-				
	Alcorn	47	55	26	38
12R	Union	38	249	50	55
13R	Prentiss-				
	Lee	29	33	40	48
15R	Cashema-				
	Bolivar	26	30	38	40
22R	Itawamba	22	34	22	25
25R	Talla- hatchie	30	30	47	40

28R	Chickasaw	22	42	19	27
33R	Sunflower-				
	LeFlore	30	28	45	35
35R	Montgomery	35	32	49	41
43R	Carroll-				
	Holmes	68	57	88	40
50R	Holmes-				
	Yazoo	68	50	92	33
56R	Sharkey-				
	Issaquena	24	32	30	85

Continued --

MISSISSIPPI -- Continued --

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
60R	Leake	33	8	65	20
73R	Rankin	12	8	43	10
74R	Smith	14	7	63	15
78R	Jefferson	9	8	10	4
89R	Lincoln	15	20	19	16

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
94R	Wayne			3	14
95R	Wayne			7	15
101R	Lamar-				
	Marion			17	11
113R	Hancock			2	2
115R	Jackson			2	0

MISSOURI

1	Boone	78	74	103	63
2	Boone-				
	Callaway	71	62	65	49
3	Callaway	59	48	122	47
4	Cole	42	43	76	43
5	Cape				
	Girardeau	46	69	45	22
6	Cape				
	Girardeau	57	64	30	28
7	Howell-				
	Douglas	15	41	5	6
8	Texas	19	16	16	10
9	Greene	29	25	48	38

11	St. Charles	22	52	11	18
13	DeKalb-				
	Daviess	59	56	27	47
14	Daviess-				
	Caldwell	67	84	48	61
15	Lawrence	24	30	91	74
16	Lawrence	31	34	111	93
17	Marion	86	82	38	51
18	Marion	64	38	46	31
19	Chariton	83	108	87	82
23	Greene	46	31	98	22

MONTANA

1	Yellowstone	23	11	14	8
2	Lewis-Clark	6	20	4	23
3	Yellowstone	--	3	--	3
5	Valley	26	21	6	11
8	Phillips	64	134	18	20
9	Phillips	158	203	17	25
10	Phillips	25	45	7	9
11	Sheridan	--	8	--	2
12	Sheridan	6	0	8	5
13	Sheridan-				
	Roosevelt	2	9	9	11

14	Madison	22	28	21	13
15	Ravelli	0	0	61	62
16	Powell	--	1	--	0
17	Lincoln	11	14	2	1
19	Dawson	15	36	30	39
20	Powder-				
	River	90	257	3	10
27	Toole	--	0	--	0
28	Pondera-				
	Toole	4	13	1	1

Continued --

MONTANA -- Continued --

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
28	Pondera-				
	Toole	4	13	1	1
29	Madison-				
	Beaverhead	15	18	38	43
33	Hill	27	25	159	63
35	Sweet Grass	--	85	--	21

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
41	Broadwater	--	9	--	21
42	Fergus	33	215	28	21
43	Phillips	--	32	--	43
44	Broadwater	11	18	17	24

NEBRASKA

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
1	Lancaster	117	92	128	113
2	Lancaster	75	80	80	78
3	Adams	58	56	103	73
4	Adams	72	40	124	89
5	Hamilton	12	159	76	117

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
11	Platte	43	36	65	62
12	Lincoln	66	31	144	89
14	Cherry	--	64	--	25
15	Cherry	--	53	--	79

NEVADA

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
1	Churchill	46	34	24	69
2	Clark	100	81	73	55
3	Clark-Mohave	98	39	203	52
4	Clark	24	15	103	41
5	Clark	0	36	2	5
6	Elko-				
	White Pine	47	26	1	5
7	Elko	19	21	69	25
8	Lyon	46	16	47	7
9	Washoe	--	45	--	7
10	Lincoln	--	23	--	49
11	Nye	--	101	--	160
12	Pershing	46	9	122	23
13	Clark	0	12	0	7

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
14	Clark	1	4	4	0
15	Elko	10	5	0	0
16	Washoe	50	55	37	12
17	Lincoln	0	8	2	3
18	Lyon	--	4	--	4
19	White Pine	--	0	--	1
20	Lincoln	--	15	--	9
21	Lander	3	2	20	0
22	Lander	0	4	2	0
23	Elko	6	5	30	59
24	Lander	0	6	2	6
25	Lyon	--	1	--	17
26	Eureka	31	5	3	0

NEW HAMPSHIRE

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
1	Cheshire	--	0	--	0
2	Merrimac				
	Rockingham	4	2	0	8
3	Strafford, N.H., York, Me.	--	8	--	0

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
4	Strafford	4	4	0	2
5	Strafford- Rockingham	1	8	1	4

NEW JERSEY

1	Sussex	6	5	5	3
2	Sussex	8	7	8	6
4	Hunterdon	15	18	16	21
5	Cumberland	9	6	5	9

7	Salem	26	40	3	1
9	Ocean	15	17	3	2
10	Hunterdon	34	18	53	27
11	Somerset	66	68	23	44

NEW MEXICO

2	Bernalillo-				
	Sandoval-				
	Santa Fe	37	324	7	21
4	Grant	--	81	--	10
6	Hidalgo				
	Grant	13	49	16	18
7	Grant-				
	Hidalgo-				
	Luna	40	50	51	28
8	San Miguel	--	42	--	19
9	San Miguel	--	83	--	2
10	Chaves	20	12	78	9

12	Chaves	53	35	39	12
16	Socorro	--	77	--	31
17	Valencia-				
	Socorro	54	46	191	119
18	Valencia	9	14	23	16
19	Chaves	51	24	39	1
20	San Miguel	--	5	--	0
25	Roosevelt	17	25	13	26
31	Socorro	70	54	34	55
32	Sierra	--	3	--	3
34	San Juan	--	27	--	120
35	Santa Fe	--	72	--	2

NEW YORK

1	Niagara	60	69	21	5
2	Niagara	33	61	16	11
3	Orleans-				
	Genesee	33	69	5	16

4	Wayne	--	31	--	10
5	Seneca	3	1	2	4
6	Seneca	7	14	1	3
7	Suffolk	20	40	1	12

Continued--

NEW YORK - Continued --

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960			1959	1960	1959	1960
8	Jefferson	--	14	--	4	15	Madison	--	23	--	27
10	Albany	--	15	--	2	16	Columbia	5	8	10	8
12	Tompkins	--	3	--	6	17	Dutchess	27	17	2	10
13	Wayne	5	22	2	2	18	Westchester	--	12	--	7
14	Ulster	18	22	2	10	19	Putnam	--	6	--	0

NORTH CAROLINA

16R	Hertford-					65R	Wilson-				
	Gates	60	43	90	64		Greene	74	51	19	68
22R	Yadkin	13	54	9	17	70R	Macon	2	11	2	55
24R	Guilford-					77R	Macklinburg-				
	Caswell-						Cabarrus	22	36	28	11
	Alamance	13	41	19	52	80R	Montgomery-				
26R	Durham-						Moore	18	14	9	17
	Person	11	26	3	6	85R	Wayne-				
36R	Wilkes-						Duplin	77	57	32	54
	Caldwell	4	13	2	7	92R	Jackson	3	3	4	0
52R	Madison-					96R	Richmond-				
	Buncombe	2	2	2	0		Montgomery	25	15	2	6
54R	Burke	20	10	24	2	98R	Hope-				
58R	Davidson	21	52	2	9		Cumberland	45	31	8	18
60R	Randolph-					99R	Cumberland	40	34	5	49
	Chatham	36	15	19	31	101R	Sampson	28	28	38	17
63R	Wake-Johnson	41	16	65	35	112R	Onslow	31	15	33	14

NORTH DAKOTA

1	Burleigh	25	29	36	28	15	Burke-Ward	--	3	--	4
2	Burleigh	62	50	42	24	16	Williams	8	7	7	7
3	McHenry-					17	Williams	4	5	7	1
	Bottineau	38	56	20	12	18	Walsh-Pembina	43	36	14	22
4	Sheridan	8	9	10	5	19	Walsh	25	31	41	20
5	Stutsman	42	31	30	12	20	Sargent	84	41	45	34
6	Stutsman	--	26	--	30	21	Ward	6	9	8	10
7	McHenry	39	27	23	20	22	Mountrail	4	5	6	8
8	Ward-Renville	49	73	8	11	23	Starke	12	28	27	29
9	Ward	80	133	13	17	24	Golden				
12	Ward	13	13	5	2	25	Valley	6	8	11	3
14	Burke	--	1	--	4	26	Kidder	35	30	11	5
							McLean	20	16	16	19

OHIO

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960			1959	1960	1959	1960
1	Ottawa	28	14	30	26	14	Wood	14	20	8	21
2	Franklin	15	15	23	44	15	Wood	28	13	32	19
3	Franklin	17	24	13	50	17	Union	38	17	17	21
9	Franklin	8	5	4	15	18	Highland	34	41	8	13
10	Pickaway &					19	Union	31	28	9	7
	Ross	28	38	65	28	20	Delaware	30	40	9	15
12	Wood	28	15	44	40	21	Delaware &				
13	Wood	26	8	13	11		Union	19	23	34	36

OKLAHOMA

1	Oklahoma-					8	Cotton	--	60	--	106
	Canadian	32	51	26	29	9	McIntosh	17	18	27	18
2	Tulsa-Rogers	18	12	17	25	10	Kingfisher	50	43	53	75
3	Pittsburg-					11	Alfalfa	--	59	--	138
	Latimer	18	11	14	16	12	Grady	50	41	13	14
4	Wagoner	13	8	52	10	13	Muskogee	8	21	14	21
5	Major	51	45	58	86	15	Love	154	104	34	56
6	Comanche	29	21	42	5	16	Johnston	90	77	100	30
7	Caddo	24	15	61	18	17	Woodward	204	152	133	94

OREGON

1	Umatilla	19	29	59	30	10	Wasco	38	28	16	16
2	Jackson	29	47	170	51	11	Morrow	71	57	140	88
3	Umatilla	55	40	54	36	12	Grant	61	40	37	23
4	Yamhill-Polk	45	44	36	32	13	Baker	11	17	41	20
5	Klamath	106	53	22	14	14	Harney	21	26	0	2
6	Deschutes	30	23	15	17	15	Malheur	13	22	27	25
7	Wasco	--	50	--	29	17	Hood River	6	17	8	24
8	Linn	6	18	48	6	18	Lake	37	34	23	18
9	Douglas	97	85	27	53	19	Jefferson	33	42	36	44

PENNSYLVANIA

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960			1959	1960	1959	1960
2	Centre	1	6	1	0	13	York	24	23	15	16
3	Centre	6	6	1	4	14	Perry	28	17	2	11
5	Elk	1	2	0	0	15	Perry	12	7	0	21
6	Elk-Jefferson	3	1	0	4	16	Indiana	3	8	9	4
8	Lycoming-					17	Indiana	11	11	0	2
	Clinton	1	1	8	1	18	Franklin	70	72	22	24
10	Franklin	38	28	0	54	20	Lancaster	19	11	29	19

RHODE ISLAND

1	Providence-				2	Washington	17	12	0	2
	Kent	11	4	3	16					

SOUTH CAROLINA

4R	Cherokee-				53R	Clarendon	23	31	8	11	
	Cleveland (N.C.)	42	47	87	67	54R	Clarendon-				
6R	Oconee-Rabun					55R	Williamsburg	26	14	8	3
	(GA.)	11	12	0	1	56R	Williamsburg-				
10R	Union-Chester	32	38	14	9	57R	Georgetown	--	17	--	19
14R	Chesterfield	72	68	15	16	58R	Orangeburg	25	28	6	10
18R	Laurens	39	31	71	25	59R	Orangeburg	3	31	47	42
25R	Marlboro	61	73	33	37	60R	Orangeburg				
27R	Abbeville	31	41	33	18	70R	Barkley-				
32R	Kershaw-					71R	Charleston	7	1	0	0
	Richland	25	13	34	12		Hampton-				
47R	Horry	52	27	8	21		Jasper	29	39	4	9
48R	Edgefield	11	15	5	6	73R	Charleston-				
50R	Aiken	62	62	39	31		Dorchester	2	2	0	1
51R	Orangeburg-										
	Aiken	20	33	9	18						

SOUTH DAKOTA

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960			1959	1960	1959	1960
1	Brown	37	39	37	24	7	Corson	44	32	18	19
2	Brown	58	32	45	53	8	Hughes	40	33	49	13
3	Hanson-					9	Kingsbury	56	36	30	26
	Davison	64	38	56	51	10	Lyman	54	11	58	25
4	Aurora	24	15	25	48						

TENNESSEE

6R	Macon-					44R	DeKalb-				
	Allen (Ky.)	24	36	44	18		Cannon	16	25	21	24
7R	Clay-					47R	Morgan-	19	20	5	3
	Jackson	29	35	19	39		Cumberland	20	19	67	82
9R	Pickett-					53R	Lauderdale				
	Wayne (Ky.)	22	36	17	22	55R	Crockett-	24	15	20	55
10R	Scott-						Haywood	54	61	45	34
	McCreary (Ky.)	7	1	2	0	57R	Henderson	15	40	14	17
14R	Dryer	43	18	15	66	61R	Maury	45	51	16	24
20R	Dickson	26	24	17	30	63R	Rutherford				
23R	Smith	39	25	28	31	67R	Cumberland-	24	48	--	16
24R	Jackson	18	38	10	26		Rhea	6	16	0	7
29R	Union-					71R	Sevier	75R	Hardeman-		
	Claiborne	25	18	14	22		Madison	13	26	9	8
31R	Hawkins-Green	14	13	38	46	84R	Grundy-				
36R	Gibson	61	16	77	56	89R	Sequatchee	2	9	2	0
38R	Benton	44	53	28	24		Shelby	49	30	67	65

TEXAS

1	Wise	25	22	31	45	12	Harris	66	45	88	66
2	Wise	--	26	--	12	14	Hidalgo	--	32	--	327
3	Robertson	34	29	90	43	16	Travis	39	18	45	20
4	Robertson	30	44	46	37	19	Crockett	37	37	24	8
7	Bosque	112	84	128	83	20	Crockett	27	27	28	13
8	Bosque	142	97	73	27	21	Val Verde	5	15	52	40
9	Wilson	229	448	182	211	22	Val Verde	27	6	110	59
10	Wilson	227	354	104	132	23	Throckmorton	61	54	159	336
11	Victoria	2	3	44	33	24	Throckmorton	43	66	170	425

Continued --

TEXAS - Continued --

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
25	Lubbock	0	2	7	13
26	Lubbock	5	4	8	14
27	Webb	78	16	185	57
28	Jefferson	22	13	73	28
29	Bexar	56	51	49	42
30	Nolan	10	16	71	18
31	Wise	74	40	67	64
32	Childress	51	53	135	334
34	Hemphill	42	31	87	56
35	Hemphill	20	26	91	46
36	Randall	--	45	--	27
37	Randall	--	10	--	15
38	Potter	57	62	141	184
39	Potter	102	85	216	180
40	Taylor	--	114	--	102
41	Taylor	--	110	--	122
42	Jefferson	16	14	87	33

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
43	Roberts	55	29	47	47
44	Roberts	26	36	25	47
45	Tom Green	88	90	171	157
46	Tom Green	95	85	188	188
47	Willacy	76	125	32	14
49	Dewitt	73	54	226	165
50	Bee	30	25	243	191
51	Colorado	43	46	243	217
52	Hudspeth	6	10	0	15
53	El Paso	--	6	--	56
54	Reeves	44	33	52	11
55	Tarrant	8	46	19	37
58	Brown	131	96	150	99
59	Edwards	29	26	46	29
60	Uvalde	--	37	--	130
62	La Salle	63	50	187	162
64	Smith	17	31	23	38

UTAH

1	Box Elder	--	25	--	4
2	Cache	9	33	8	17
4	Tooele	27	41	138	73
5	Juab-Tooele	26	27	5	2
6	Box Elder	--	57	--	49
8	San Juan	20	5	82	38
9	Carbon-Emery	28	16	19	5
11	Kane	55	20	57	4
12	Iron	60	52	105	49
13	Wayne-Emery	--	26	--	18
14	Millard	99	171	89	52
15	Salt Lake	27	42	34	58

19	Garfield	26	17	11	0
20	Barfield-Wayne	4	10	3	0
22	Beaver	191	29	70	7
23	Washington	--	34	--	14
24	Rich	--	36	--	26
26	Wayne-Emery	3	13	0	2
27	Weber	15	6	24	19
28	Grand	--	14	--	16
29	Summit	2	9	3	10
30	Juab	56	50	61	64
31	Summit	44	10	5	6
32	Uintah	22	21	19	17

VERMONT

1	Addison	1	8	4	0
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VIRGINIA

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
1	Alexandria-				
	Fairfax	15	23	10	18
2	Fairfax	35	24	9	14
3	Westmoreland-				
	Richmond	66	29	80	37
5	Nansemond-				
	Isle of Wight	57	40	24	20

Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960
6	Nansemond-				
	Isle of Wight	46	61	9	49
7	Campbell	44	51	11	13
8	Southampton	72	86	22	35
11	Montgomery	5	2	0	0
12	Accomack	18	32	1	3
13	Culpepper	66	76	22	27

WASHINGTON

1	Spokane	76	24	23	15
2	Douglas	48	26	61	19
3	Spokane	--	21	--	22
4	Whitman	121	29	13	12
5	King	--	1	--	0
6	Okanogan	56	64	175	180
7	Skagit	4	0	7	5
8	Yakima	121	110	229	247
9	Yakima	47	47	376	216

10	Yakima	24	31	101	65
12	Yakima	38	33	139	156
13	Ferry	58	24	19	9
14	Stevens	121	16	32	1
17	Douglas	52	81	215	76
18	Chelan	33	42	97	55
19	Okanogan	68	61	126	78
20	Okanogan	37	34	34	30

WEST VIRGINIA

1	Hampshire	5	13	1	5
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WISCONSIN

1	Dane & Columbia	36	49	19	25
2	Columbia	24	26	5	9
3	Iowa	27	43	2	2
4	Green	38	30	12	15
5	Jackson	70	73	12	26
6	Dunn	71	99	23	12
7	Dunn	49	57	14	15
8	Adams	36	55	8	24
9	Sauk	40	42	3	4

10	Waushara	34	28	19	19
12	Dane	18	24	8	5
13	Adams	28	16	1	3
17	Winnebago	7	7	4	1
18	Winnebago	14	13	4	5
19	Kenosha	25	27	10	9
20	Grant	--	9	--	13
21	Vernon	--	21	--	19
22	Dodge	--	23	--	2

WYOMING

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1959	1960	1959	1960			1959	1960	1959	1960
1	Johnson	20	11	11	8	13	Niobrara	66	43	45	23
2	Hot Springs	4	3	14	8	16	Campbell	64	74	79	54
3	Natrona	45	47	25	33	18	Fremont	24	8	70	36
4	Carbon	11	14	3	4	19	Albany	--	0	--	0
7	Platte	21	15	15	17	20	Park	--	17	--	47
8	Washakie	28	30	17	49	21	Laramie	16	24	39	15
10	Carbon	--	0	--	0	23	Park	0	4	3	0
12	Uinta	5	4	8	0						

bill
9